HJR 153 FEASIBILITY STUDY

GENERIC QUESTIONS

1. Please identify the major issues/questions that should be addressed by the HJR153 feasibility study.

   Response:
   - What is the driving factor/reason for placing/converting facilities from overhead (OH) to underground (UG)? Aesthetics, Perceived Reliability, Environmental Issues, Other?
   - If reliability, what are other options besides UGing for improving reliability to obtain like or same results?
   - Operational advantages and challenges
   - Installation and maintenance advantages and challenges
   - Estimating and comparing associated costs – capital and O&M
   - Determining time frame(s) and impact on resources (human, cost, equipment, etc.)
   - Cost recovery and impacts on customers, utility, third parties (joint use customers**)**

2. Please describe the potential benefits to the public and utility companies associated with the undergrounding of overhead distribution lines.

   Response:
   - **Improve aesthetics**
     - Placing facilities UG typically provides a more aesthetic view than OH facilities
   - **Smaller right of way (RoWs)**
     - When facilities are placed UG, RoW requirements might be reduced
   - **Fewer traffic accidents**
     - Although pad mount transformers and switch cabinets associated with UG facilities still present a concern, there are fewer facilities (poles) for vehicles to come in contact with.
   - **Fewer number of outages (SAIFI)**
     - In general, placing facilities UG makes them less susceptible to problems (severe weather, vehicle, vegetation, etc.) that impact the number of outages (SAIFI).

3. Please describe the potential negative impacts on the public and utility companies associated with the undergrounding of overhead distribution lines.

   Response:
   - **Costs associated with installing and/or converting OH to UG**

- **Cost to Customers**
  - Some studies have shown that the ultimate impact of the capital costs alone for converting OH to UG could more than double the average monthly electric bill.
  - Customers would be required to modify their service entry to accept UG service facilities.
- **Cost to Utilities**
  - The cost of installation, modification, and expansion of system is significantly higher for UG than OH
  - In general, additional resources would be required because designs are more complex, the materials are more expensive, and installation takes longer
- **Municipalities**
  - Would be responsible for costs associated with UGing street lights, traffic signals, etc
  - Would be responsible to obtain easements, trenching, permitting, code requirements
  - Local governments may be reluctant to request such conversions due to the cost
- **Aesthetics**
  - Burial of facilities may require landscaping to be disrupted, which can impact anything from a customer's flowerbed to sidewalks to streets and roads.
  - Trenching will cause damage to trees and related vegetation
  - Property easements with UG facilities must be kept completely clear
- **Joint Use**
  - Placement of new UG facilities may be challenged by existing utilities already below ground or be constrained by limited space if other utilities are also relocating OH to UG
  - Loss of utility revenue from other entities utilizing OH facilities

- **Operational**
  - Outage problems are significantly more problematic to diagnose with UG facilities and typically take longer to restore which would increase CAIDI.
  - OH is more flexible than UG. (e.g., tapping facilities to service new customers, installing new transformers and reconfiguration work due to increased/changing load all add additional time and costs when compared to performing the same functions for an OH request).
  - Adequate circuit sectionalizing and protection will be more difficult to achieve on very long circuits that are buried completely underground.
  - Long UG circuits are naturally capacitive due to the material characteristics of the cable, which can result in abnormally high voltages, especially on circuits operated at 34.5kV.

- Extensive transmission and station infrastructure additions may be necessary to fragment the existing distribution system (i.e. bust up long circuits) to overcome the sectionalizing/protection and cable capacitance issues.
- UG has a shorter life expectancy of approximately 30+ years vs. 50+ years for OH.
- Geography and terrain would present challenges to installing UG in areas with hillsides, waterways, rock, etc. for both new and existing services.
- Urban settings may not have capacity in underground ductbanks to house additional/upgrade facilities.
- Hindrances (such as drive ways, directional boring or pavement removal and replacement, trenching complications), and additional time associated with the installation of underground may cause delays in new services and replacing existing services.
- New RoW agreements might need to be taken with property owners when converting OH to UG
- The number and severity of customer dig-ins to facilities could increase significantly in conjunction with UGing of existing OH facilities.
- Crossing roads will require more detailed analysis, greater permitting requirements and marking of facilities thereby necessitating more coordination and involvement with municipalities, counties, the Commonwealth and Miss Utility.

4. Please describe in detail the potential obstacles associated with the implementation of a program to relocate overhead distribution lines to underground (for example, statutory, regulatory, technological, economic, safety, and physical obstacles).

Response:

- See response to question 3.
- Costs associated with converting OH facilities to UG are expected to be prohibitive. A recent study done by the North Carolina Commission indicated cost estimates for such projects range from $500,000 to $3,000,000 per line mile compared to $120,000 per line mile for installing overhead lines. Conversion to UG would require an extensive amount of additional labor and resources over many years.
- Planning to install UG facilities on the initial request for service is less cost prohibitive than converting existing facilities. However, in general, installing UG facilities is more expensive than the basic plan to serve, which is typically considered OH. As a result, a contribution in aid-of-construction could be required.
- In well-developed areas, there would be significant tree mortality due to the digging/boring into root systems.

- There may be additional statutory and regulatory obstacles that have not yet been identified.

5. Please describe the process for identifying and securing right-of-way easements for the relocation of existing overhead distribution lines to underground. What property rights issues would be raised as a result?

   Response:
   - The company has not developed a process for identifying and securing right-of-way easements for the relocation of existing overhead distribution lines to underground on a large-scale basis. Such a wholesale conversion would necessitate the acquisition of many new easements. In addition, it is also expected there would be a substantial increase in RoW resources to handle indemnification, legal issues, eminent domain issues, property owner identification and the procurement of such easements.

6. In order of importance, list the criteria that should be considered to determine whether the implementation of a program to relocate overhead distribution lines to underground is desirable.

   Response:
   - Develop a process for cost recovery of capital investment.
   - Determine the driving factor(s) for placing OH to UG? (See response to question #1)
   - Consider the cost versus benefit
     - Funding options
     - Resource commitment
     - Operational advantages and disadvantages
     - Public acceptance
     - Determine other options to obtain like results based on main objective

7. In order of preference, describe the potential options for funding the relocation of overhead distribution lines to underground and explain the basis of your recommendation.

   Response:
   - The company is willing to consider any option for funding the relocation of OH to UG as long as the company does not have to bear the costs associated with such a conversion.

8. Should one or more pilot programs be conducted to determine more precisely the benefits, costs and obstacles associated with the implementation of a program to relocate overhead distribution lines to underground? If pilot programs should be conducted, how could and should the pilot programs be funded?

Response:

- No. The Company has sufficient experience and information with regards to converting OH to UG (on a small scale basis) such that a pilot program is unnecessary.

9. Considering the costs, benefits and obstacles associated with the implementation of an undergrounding program, should the General Assembly require utilities to place all or a portion of existing and/or new overhead distribution lines underground? Alternatively, should such decisions be left to local government? Please explain your answer.

Response:
For the reasons cited, as well as others, it would not be reasonable or prudent for the General Assembly to require utilities to place all, or even some portion of, existing overhead distribution lines and/or new distribution lines underground without cost recovery.

10. What obstacles, if any, currently prevent a local government from enacting an ordinance establishing all or a part of the locality as an area in which: (a) existing overhead utility distribution lines must be relocated underground over some period of time; and/or (b) all new utility distribution lines must be located underground?

Response:
APCo has not attempted to identify what obstacles, either legal or otherwise, might currently prevent a local government from enacting such an ordinance.

11. For the specific purpose of funding the undergrounding of existing overhead utility distribution lines, what obstacles, if any, currently prevent a local government from levying a special tax on the residents and businesses of an area within the locality in which the local government has enacted an ordinance requiring the undergrounding of utility distribution lines? Would such a special tax assessment require specific new authorization from the General Assembly?

Response:
APCo has not conducted the legal research that would be necessary to provide a response to this question.

12. Interested parties are invited also to address all other legal and policy issues they believe relevant to this investigation.

13. Please indicate below your desired level of participation in the feasibility study.

ڤ *Placed on the distribution list for all correspondence*.

(X) *Considered as an active participant in the feasibility study*. If you wish to be considered as an active participant, please complete the following:

Field of expertise_____

Organization_____

14. If you are interested in participating as an active participant, would you be willing to serve also as a member of a subgroup to identify, research, and analyze specific issues and provide written summaries of specific topics of study?

(X) *Yes* ڤ*No*

15. Please provide the following contact information:

Name _____

Title _____

Mailing Address _____

_____

_____

Telephone _____Fax_____

Email Address _____